Competitors must enter and begin providing customers with real choices. If a market is occupied by a monopolist, at most policymakers can allow entry and create conditions under which the entrants have a reasonable opportunity to compete for business along with the incumbent monopolist.

At least initially, the entry is likely to be piecemeal, with competitors continuing to rely on the incumbent LECs for essential facilities (i.e., the unbundled network elements) for many years to come. Moreover, competitors require the LECs to meet the other requirments of the 1996 Act, including number portability, right-of-way access, etc. An earlier analysis by Economics and Technology, Inc. and HAI demonstrated that local competition is possible, but will take many years to develop.[56]

IX. UNIVERSAL SERVICE SUBSIDIES

Universal Service subsidies need not interfere with the movement of prices to cost. The 1994 HAI study demonstrated that subsidy for local service is much lower than commonly believed. At that time, only four billion dollars was needed to maintain local rates at their current levels. The cost study described here shows that the costs of Basic Universal Service are even lower. In any event, the legislation provides a mechanism for dealing with the Universal Service issue. Universal Service costs must be separately identified. The necessary funds must then be collected and distributed through a mechanism by which all competitors contribute on a fair and equitable basis. The FCC has already begun this process.[57]

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[56] The Enduring Local Bottleneck, *supra*, note 49, pp. 206-212.

[57] See, Notice of Proposed Rulemaking and Order Establishing a Joint Board, CC Docket No. 96-45, released March 8, 1996.

X. NEXT STEPS

As part of its effort to implement the 1996 Act, the FCC must undertake to study the economic cost of LEC services. The modeling approach described here can serve as a basis for that investigation. The LECs will criticize the model on various grounds. However, the FCC will likely discover that to the extent the LEC criticisms are valid, they can only be addressed by the application of data that are currently in the exclusive possession of the LECs themselves. As the BCM Model shows, when the LECs have incentives to cooperate, they are able to produce useful data and information to the FCC. The FCC should accept the estimates developed here unless and until the LECs provide additional data that can be used in the model.

Unit Cost by Network Element

Loop elements

	0-10 pop/km2	10-100 pop/km2	100-500 pop/km2	500-1,000 pop/km2	1,000-5,000 pop/km2	>5,000 pop/km2	Totals
Loop Distribution							
Annual Cost	$ 2,423,179,454	$ 6,150,810,401	$ 1,643,963,604	$ 1,275,061,157	$ 3,690,920,048	$ 770,922,988	$ 15,954,857,652
Units	8,969,439	30,420,078	27,516,643	19,807,291	56,445,945	13,066,968	156,226,363
Unit Cost/month	$ 22.51	$ 16.85	$ 4.98	$ 5.36	$ 5.45	$ 4.92	$ 8.51
Loop Concentration							
Annual Cost	$ 1,407,376,597	$ 4,356,341,762	$ 46,557,808	$ 34,169,753	$ 97,158,618	$ 24,034,105	$ 5,965,638,642
Units	8,969,439	30,420,078	27,516,643	19,807,291	56,445,945	13,066,968	156,226,363
Unit Cost/month	$ 13.08	$ 11.93	$ 0.14	$ 0.14	$ 0.14	$ 0.15	$ 3.18
Loop Feeder							
Annual Cost	$ 570,854,034	$ 1,498,576,213	$ 1,245,621,890	$ 264,379,205	$ 414,853,516	$ 35,456,856	$ 4,029,741,714
Units	8,969,439	30,420,078	27,516,643	19,807,291	56,445,945	13,066,968	156,226,363
Unit Cost/month	$ 5.30	$ 4.11	$ 3.77	$ 1.11	$ 0.61	$ 0.23	$ 2.15
Total Loop							
Annual Cost	$ 4,401,410,085	$ 12,005,728,376	$ 2,936,143,301	$ 1,573,610,115	$ 4,202,932,183	$ 830,413,948	$ 25,950,238,009
Units	8,969,439	30,420,078	27,516,643	19,807,291	56,445,945	13,066,968	156,226,363
Unit Cost/month	$ 40.89	$ 32.89	$ 8.89	$ 6.62	$ 6.20	$ 5.30	$ 13.84

	Annual Cost	Units		Unit Cost	
End office switching	$ 5,751,872,548				
1. Port	$ 1,725,561,764	141,126,511	switched lines	$ 1.02	per line/month
2. Usage	$ 4,026,310,783	2,264,200,000,000	minutes	$ 0.0018	per minute
Signaling network elements	253657787.7	n/a			
Transport network elements					
1. Dedicated	$ 1,150,882,311	18,227,755	trunks	$ 5.26	per DS-0 equivalent/month
				$ 126.28	per DS-1 equivalen/month
				$ 3,535.78	per DS-3 equivalent/month
2. Common	$ 664,454,045	1,464,070,959,357	minutes	$ 0.0002	per minute per leg (orig or term)
3. Tandem switch	$ 1,112,005,760	1,464,070,959,357	minutes	$ 0.0008	per minute
Operator systems	$ 116,117,445	n/a			
Public Telephones	$ 1,098,242,547	n/a			
Total	$ 36,097,470,452				

Attachment

HATFIELD ASSOCIATES, INC.
International Telecommunications Consultants
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Statement of Qualifications

General Qualifications

Hatfield Associates, Inc. (HAI) is an interdisciplinary consulting and research firm serving a wide range of telecommunications industry clients. The firm was founded in February, 1982. In the more than one decade of its existence, the firm has provided consulting and educational services in nearly all aspects of the present and future telecommunications infrastructure, including local exchange networks, cable television systems, competitive access networks, land mobile and personal communications, long haul terrestrial and satellite communications, data communications, and customer premises equipment. Principals of the firm include consultants with graduate degrees and decades of senior level experience in engineering, economics, business, and policy/regulation.

Examples of recent consulting assignments include:

- Estimating the investments and costs associated with the provision of local exchange and exchange access services;

- Analyzing the potential for competitive entry into the local exchange telecommunications business, presented in a paper entitled "The Enduring Local Bottleneck: Monopoly Power and the Local Exchange Carriers";

- Testifying in state proceedings on various aspects of competitive entry into local exchange and exchange access services, and on state mechanisms to fund Universal Service;

- Assessing the technological and economic merits of various telephone companies' plans for offering video dialtone services;

- Preparing a report entitled "Cross-Subsidy Concerns Raised by Local Exchange Company Provision of Video Dialtone Services" that was attached to a petition filed with the Federal Communications Commission (FCC) by the National Cable Television Association and the Consumer Federation of America;

- Developing a vision statement dealing with the future of cable television networks in providing telecommunications and enhanced video services;

- Authoring the "Telecommunications Technology" and "Utility Applications of Telecommunications" chapters, describing utility opportunities in telecommunications, of a major telecommunications report for the Electric Power Research Institute;

- Analyzing telecommunications opportunities, costs, and modes of entry for several major electric utilities, leading in one case to a decision by the utility to deploy a backbone fiber optics network and partner with other entities in the provision of Personal Communications Services;

- Developing material on telecommunications technology for inclusion in a report on international telecommunications prepared by the Office of Technology Assessment of the U.S. Congress;

- Analyzing trends in telecommunications architectures and technologies for a major computer company;

- Providing tactical advice and computer network support for a client bidding in the FCC auction of 900 MHZ Specialized Mobile Radio licenses;

- Assessing opportunities for the branches of the U.S. Military to consolidate their use of wireless communications;

- Providing analyses for an investment firm contemplating a major investment in a paging company;

- Providing telecommunications education to countries in Central and Eastern Europe; and

- Assessing the impact of major telecommunications issues on cable television companies.

Qualifications in Telecommunications Education

HAI and its principals have been heavily involved in telecommunications education, both in the U.S. and in Eastern and Central Europe. HAI principals hold adjunct teaching positions in the Telecommunications Programs at the University of Colorado and the University of Denver. Course topics range from the basic terms and concepts of telecommunications to enterprise computer networking, and also include, economic regulation, the telecommunications infrastructure, issues concerning the structure and management of the North American Numbering Plan, and the architecture and technology of wireless communications.